

## **ABSTRACT**

Core 1  $\beta$ 3-galactosyl transferase specific molecular chaperones (Cosmc-1) and nucleic acids encoding the core 1  $\beta$ 3-galactosyl transferase specific molecular chaperones or proteins having core 1  $\beta$ 3-galactosyl transferase specific molecular chaperone activity are described. The polynucleotides encoding Cosmc-1 can be used to transform or transfect host cells for producing substantially pure forms of active forms of core 1  $\beta$ 3-galactosyl transferase and/or for use in an expression system for post-translational core 1 glycosylation of proteins or peptides produced within the expression system, for example, glycosylation via a  $\beta$ 3-linkage, of an N-acetylgalactosamine linked to a serine, threonine or other linking amino acid on peptides or proteins requiring O-, N-, or S-linked glycosylation.